United States Environmental Protection Agency | Office of Water (4606) | EPA 916-F-01-026 July 2001

8-1

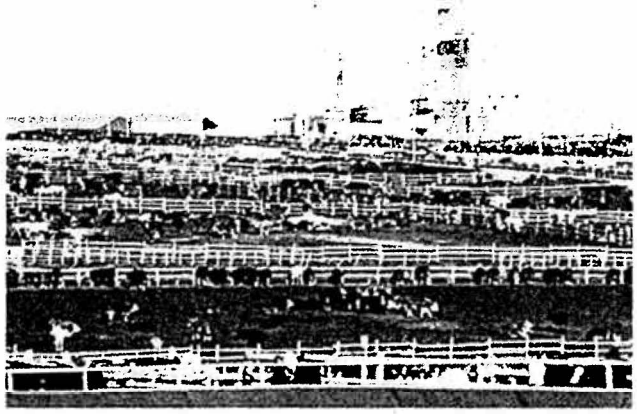
Source Water Protection Practices Bulletin

Managing Livestock, Poultry, and Horse Waste to Prevent Contamination of Drinking Water

Animal waste or feces have long been isolated from people for public health reasons. Yet, animal waste is deposited daily into rivers, streams, and other water bodies. This waste poses a continuous threat to human health. Appropriate steps must be taken to lower this risk and prevent contamination of drinking water sources. This fact sheet addresses some source water contamination prevention measures related to livestock, poultry, and horses that can improve water quality and reduce the burden on drinking water treatment facilities. (Refer to the fact sheet on pet and wildlife waste for information on management measures related to these animals.)

SOURCES OF ANIMAL WASTE

Livestock and poultry are major sources of waste. Estimates indicate that the amount of livestock waste is 13 times greater than the amount of human sanitary waste generated in the United States. Livestock and poultry waste can be introduced to the environment through direct discharges, through land application of manure, and from open feedlots, barns and housing, and pastures.



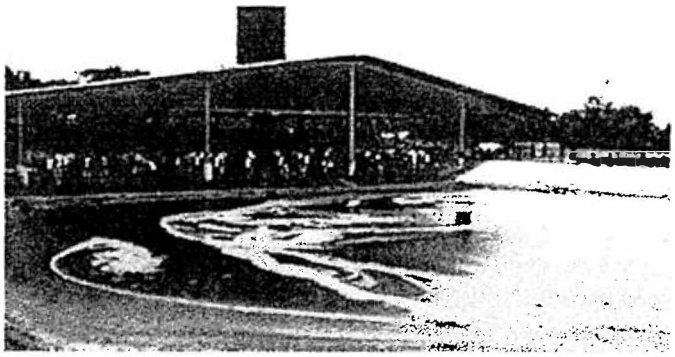
Cattle feedlot

Companion animals, such as horses used for showing and recreation, also produce waste that should be accounted for in pollution prevention. Horses raised on hobby farms, while similar to livestock, are managed differently, allowing for alternative prevention measures. The average horse produces about 45 pounds of waste each day, an amount that can be overwhelming to those operating small, suburban horse farms. Horses are rarely kept in a single facility of more than 50 animals. Although this lower density eliminates some of the concerns that pertain to livestock, horse waste can be managed using many of the same prevention measures used for livestock.

WHY IS IT IMPORTANT TO MANAGE ANIMAL WASTE NEAR THE SOURCES OF YOUR DRINKING WATER?

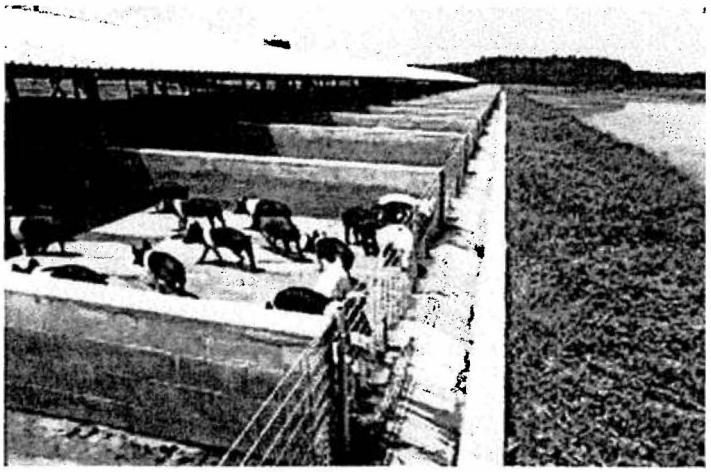
Animal waste contains many pollutants that can contaminate surface and ground waters used as drinking water sources. Probably the greatest health concern associated with livestock, poultry, and horse wastes is pathogens. Many pathogens found in animal waste can infect humans if ingested. Organisms like *Cryptosporidium*, *Giardia lamblia*, and *Salmonella* can induce symptoms ranging from skin sores to chest pain. *E. coli*, which causes diarrhea and

A ***lagoon,*** or waste storage pond, is made by excavating earth fill to provide temporary storage of animal waste. This practice can reduce the amount of organics, pathogens, and nutrients entering surface waters; however, lagoons can contaminate ground water if they are not constructed and maintained properly. Lagoons have three distinct zones containing liquids, sludge, and solids. These wastes can later be pumped out and applied to cropland as fertilizer.



Lagoon

Because of the risk to ground water, good planning, design, and maintenance are critical when using a lagoon for animal waste storage. Two important components are the location and the liner of the lagoon. A lagoon should be placed in accordance with State and local requirements for separation distances from nearby drinking water wells. Lagoons should be located downslope from wells and never sited on floodplains. Lagoons should be designed to contain at least a 25-year, 24-hour storm plus process wastewater. (A 25-year storm is one that has a one-in-25 chance of occurrence in a given year).



Hog parlor with lagoon

A lagoon should be constructed with a ***low-permeability liner*** made of synthetic material or geotextiles or formed by compacted clay or other soil material. Once the liner is established, it is imperative to maintain its integrity during the waste removal process. Any erosion can lead to seepage and subsequent contamination of ground water. Two practices to protect the liner are building a concrete access ramp for waste removal equipment, and operating equipment under dry conditions by first removing all the liquids and letting the solids dry.

Poultry litter storage facilities are designed to keep rainwater and runoff away from poultry house waste being stored for later application to crops. Litter storage can ensure that poultry waste is applied under the proper conditions to protect the environment and to coincide with soil and crop needs. Types of litter storage buildings (ranging from the least to the most protective of water sources) include open stockpiles, covered stockpiles, bunker-type storage, and roofed storage structures. The appropriate size of the storage structure depends on the amount of litter removed and how often the poultry houses are cleaned out.

Clean water diversion is an effective measure that prevents contamination of precipitation or surface flow as it makes its way to drinking water sources. Proper storm water management in and around feedlots and livestock yards, including proper protection (or isolation) of agricultural drainage well inlets, is essential to guarding against ground water contamination. Rain gutters and downspouts on animal shelter roofs keep runoff clean by directing precipitation away from manure. Another tactic to prevent runoff contamination is to construct superficial diversions, such as earthen ridges or diversion terraces built above the feedlot or barnyard, to direct surface flow away from waste.

Ohio EPA CAFO NPDES Permit Manure Land Application Restrictions

Streams, Lakes, Ponds, Watercourses, Other Surface Waters, Waterways, Open Tile Line Intake Structures, or Other Conduits to Surface Waters
Manure shall not be applied closer than **100 feet**, unless a 35-foot vegetated buffer has been established where manure application is prohibited. A mandatory 35-foot vegetated buffer must be established along fields with perennial streams regardless of setback requirement.
Public Drinking Water Surface Water Intakes
Land application shall not take place within the **emergency management zone** of a public water system using surface water. Otherwise, manure shall not be applied closer than **300 feet** from the edge of the field.
Seasonal Salmonid and Cold Water Habitats
Manure shall not be applied closer than **100 feet**, unless a 35-foot vegetated buffer has been established where manure application is prohibited.
Public Drinking Water Wells
Land application shall not take place within a **highly susceptible drinking water source protection area** (as defined by Ohio EPA) for a community public water system using ground water and not within the inner management zone for all other community public water systems using ground water.
Private Drinking Water Wells
For **injection application** and surface application followed by **incorporation within 24 hours**, manure shall not be applied closer then **100 feet**.
For **surface application** not followed by incorporation within 24 hours, manure shall not be applied closer than **300 feet**.
Class V Agricultural Drainage Wells, Agricultural Wells, or Sinkholes
For **injection application** and surface application followed by **incorporation within 24 hours**, manure shall not be applied closer then **100 feet**.
For **surface application** not followed by incorporation within 24 hours, manure shall not be applied closer than **300 feet**.
Springs
Manure shall not be applied closer than **300 feet**.
Slope
For fields with a slope **less than 15%**, surface application can be used when yearly average soil loss is less than five tons per acre or "**T**", whichever is less.
Manure shall not be applied to cropland **over 15%** slope or to pasture/hayland **over 20%** slope unless one of the following precautions are taken: a. Immediate incorporation or injection with operations done on the contour, unless the field has 80% ground cover (residue or canopy); b. Applications are timed during periods of lower runoff and/or rainfall (May 20 to October 15); c. Split applications are made (separated by rainfall events) with single applications not exceeding 5,000 gallons per acre for liquid manure or 10 wet tons per acre for solid manure; d. The field is established and managed in contour strips with alternated strips in grass or legume.
Stockpiling of Manure
Streams, Lakes, Ponds, Watercourses, Waterways, Open Tile [illegible]ke Structures, or Other Conduits to Surface Waters, minimum **300 feet** setback. (Stockpili[illegible]ways or concentrated flow areas is prohibited.)
Public and Private Wells/Springs, minimum **300** [illegible]ack.
Flooding/flood plains/floodways, **prohibited**.
Public Drinking Water Surface Intakes, minimum **1,500 feet** setback.
Class V Agricultural Drainage Wells and Sinkholes, minimum **300 feet** setback.
Slope, **0-6% only**.

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PHONE (419) 354-9126
COUNTY OFFICE BUILDING, COURTHOUSE SQUARE
BOWLING GREEN, OHIO 43402

WOOD COUNTY

PLANNING COMMISSION

November 30, 2004

RECEIVED
NOV 30 2004
WOOD COUNTY ENGINEER
By

Fred L. Dailey
Director, Ohio Dept. of Agriculture
8995 E. Main Street
Reynoldsburg, OH 43068

RE: Proposed dairy operation, Section 31, Portage Township, Wood County, Ohio

Dear Mr. Dailey:

This letter is being drafted to express public health and safety concerns, primarily, flooding concerns, regarding a dairy operation proposed for the above noted location in Wood County, Ohio.

Wood County's physical landscape is characterized by extremely flat topography. There is only 5 to 10 feet of fall per mile along throughout the boundaries of the County. From a geophysical standpoint, Wood County is composed of limestone bedrock and tight, highly compacted clay soils. The flat topography of Wood County coupled with the abundance of poorly drained clay soils that rest upon shallow limestone bedrock work to create a unique and difficult flood hazard situation. While flood events in Wood County lack the speed and volume of flash flood events in other Ohio Counties, Wood County's flood events are nonetheless equally dangerous in terms of damage to infrastructure and buildings. When a flood event occurs in Wood County, floodwaters spread out over a wide geographic area causing problems for home and business owners. One of the most serious problems in a Wood County flood event is the contamination of private drinking water wells and the overflow of untreated waste from home sewage disposal systems.

All of these above described factors lead to general concern about the proposed dairy operation in Portage Township. Portage Township is one of Wood County's most floodplain prone Townships. The location of the proposed dairy operation is within the 100 year floodplain of Rocky Ford Creek, and the proposed site of the dairy operation, as well as immediate surrounding areas are often inundated with standing water several

25-5

times a year after a heavy rainfall or snowmelt event. The location of a manure storage lagoon for the dairy operation is cause for concern due the increased potential of runoff during a flood event given the lagoon's proximity to the 100-year floodplain of Rocky Ford Creek. Even with F.E.M.A. flood proofing methods of construction that the lagoon and other buildings at the site will need to be constructed to, there is still an increased chance of contamination due to the floodplain.

Another issue of concern regarding this dairy operation in relation to floodplain problems is the issue of manure disposal. As noted above, Portage Township is one of Wood County's most floodplain prone Townships. Not only is there severe floodplain at the site of the proposed dairy operation, the floodplains continue throughout the Township. It was my understanding that manure was not allowed to be disposed of in a 100-year floodplain area. Since the majority of Portage Township lies within a 100-year floodplain, it may become quite difficult to dispose of manure in the manner prescribed by the Ohio Department Of Agriculture.

In closing, I would like to once again stress that the 100 year floodplain of Rocky Ford Creek at the site of this proposed dairy facility is cause for public health and safety concerns. The risk of run off and contamination into surrounding residences and watersheds will be increased significantly due to the floodplains in the area. There is also considerable concern regarding the disposal of manure generated from the dairy operation into the surrounding Township floodplain area. I urge you to consider these floodplain issues strongly for they have they have the potential to generate a large array of public health problems. I also urge you to consider not locating a dairy operation at the subject location. I have attached a map to this letter that clearly depicts the whole array of floodplain areas in Portage Township. Please review this map, and consider the issue of fiddoplains. If you have any questions, or wish to discus this matter further, please contact my Office.

Sincerely,

Dave Steiner
Director
Wood County Planning Commission

cc: Large Livestock Environmental Permitting Office
Tony Allion, Wood County Engineer

8-4

A fine gravel with some sand was encountered in boring C-11 at elevations of 74.3' to 69.3'. Poorly graded sand and gravel was encountered in Boring C-12 at elevations of 76' to 68.5' and in boring C-13 at elevations of 71.6' to 67.1'. These soils have been excluded from the isolation distance table in Appendix J.

Since the proposed east sand settling basin, a fabricated structure, does not provide 15 feet of low permeable soil beneath it, as an additional design measure, the east basin will be designed and constructed to be watertight and groundwater monitoring is proposed for this structure. As an additional environmental protective measure, the groundwater monitoring system for the east basin will be expanded to also include monitoring for the west setting basin and the proposed earthen manure storage pond areas. The groundwater monitoring program is outlined in Appendix G of this report.

(F) Sole source aquifer.

A manure storage pond or manure treatment lagoon shall not be located above a sole source aquifer without design of ground water monitoring or engineered controls or both that are installed and implemented as approved by the director.

Response: The proposed manure storage pond is not located above a Sole Source Aquifer. See Appendix F.

(G) Floodplains and floodways.

(1) A manure storage pond or manure treatment lagoon shall not be located in a one hundred year floodplain without design of additional monitoring or engineered controls or both that are installed and implemented as approved by the director and by other appropriate permits.

Response: A portion of the (b)(6) Dairy site falls within a designated Federal Emergency Management Agency (FEMA) 100 year floodplain.

As shown on the "Flood Boundary and Floodway Map, County of Wood, Ohio, Community-Panel Nos. 390809 0115 and 390809 0155" included in Appendix G of the Subsurface and Siting Report, a floodway has not been

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designated by FEMA along the portion of Rocky Ford Creek near to the proposed (b)(6) Dairy facility. The nearest designated floodway is approximately 2,500 feet upstream of the proposed dairy facility (just south of Jerry City Road). Please refer to the "Key to Map" that indicates the different symbols that are used to distinguish a floodway from a 100-year flood boundary (i.e., floodplain). The western portion of the proposed facility falls within a FEMA designated Zone A 100-year flood boundary as shown on the "Flood Insurance Rate Map, County of Wood, Ohio, Community-Panel No. 390809 00115 B" (see Appendix G of the Subsurface and Siting Report). According to FEMA Publication 265/July 1995, "Managing Floodplain Development in Approximate Zone A Areas", a Zone A designation identifies an approximately studied special flood hazard area for which 100-year Base Flood Elevations (BFEs) have not been determined. Floodways are not typically designated in these areas due to a lack of the detailed engineering analyses required to establish the BFEs.

Permit to Install No. NAC 20071-POOT-WOOD
Permit to Install No. NAC 20071-POOT-WOOD
Permit to Install No. NAC 20071-POOT-WOOD
FINAL PERMIT

According to conversations with Ohio Department of Natural Resources personnel, a Zone A flood boundary designation is typically only as good as the topographical information available from standard USGS mapping. Given the relatively flat terrain of the general area along Rocky Ford Creek north of Jerry City Road, there is considerable question as to the validity of the current flood boundary, especially in light of the detailed topographical survey conducted for the proposed dairy facility. The western portion of the site is generally higher topographically than the eastern portion, yet it is the western portion of the facility that is designated by FEMA to be within the floodplain. Based upon analysis of more recent and more accurate topographic information, the FEMA designated 100-year flood boundary does not appear to be realistic.

Received
JAN 4 2007
ODA-Livestock Environmental
Permitting Program

7-55

Cygnet's water wells. Could you check to see if they would be prohibited from siting their m close to the Village's drinking wells?

A: The Ohio EPA will have a copy of the source water protection area delineated for the Village of Cygnet. This document will show the 1 and 5 year time of travel zones for the wellfield. By spotting the proposed manure storage pond on the delineation, you will be able to determine if the proposed location is within the 1-year time of travel. I am sure Melinda Harris will be able to assist you with this question.

Q: Another question is that they are prohibited from siting their manure storage pond in a FEMA 100-year floodplain. It's very obvious from the maps that this field IS in a FEMA flood plain. The Permit states that "the FEMA designated 100-year flood boundary does not appear to be realistic." Can they just say it's not realistic - shouldn't someone rule on whether it is or not and whether they can build there?

A: The National Flood Insurance Program Regulations are minimum standards designed to reduce flood damage for development located within identified 100-year floodplains. There are no prohibitory statements in the NFIP standards concerning development in the flood hazard areas, instead, development in the risk area must comply with performance standards designed to reduce the risk. This requirement may be a higher standard that is imposed by the Ohio Dept. of Agriculture through administrative rules, or by the local community participating in the NFIP. The email says the site is "near Cygnet." Local floodplain management is tied to the political jurisdiction so if the site is in Cygnet, the Zoning Administrator is responsible for floodplain management permits and development review for specific standards. If the site is unincorporated Wood County, Wood County Planning Commission has floodplain management responsibility.

The current effective Flood Insurance Rate Map and Flood Study are the basis for community development decisions and regulation. FEMA has procedures for correction of mapping errors and they do not delegate the authority to change the maps or regulatory information to the State or local level. There are limited circumstances where communities may use "best available data" if the current Flood Insurance Rate Map has only approximate flood information. Otherwise, the detailed data is the basis for regulation and an opinion on the "realistic" appearance of the floodplain is not sufficient to ignore or alter the regulatory Base Flood Elevation or Floodway boundary.

The Floodplain Management Web Page http://www.dnr.state.oh.us/water/floodpln/default.htm will provide links to the contact information for the local floodplain managers in Cygnet and Wood County or the Division Floodplain Management Program staff if there are more questions. This response was prepared by Cindy Crecelius, Administrator of the Floodplain Management Program.

Q: Last question - the Permit also states that a manure storage pond shall not be located in "*karst areas*". The dairy site IS located within a potential karst area - but they say there are no karst features observed at the site and, therefore, "it is not located in a karst area." Once again, can they just say it's not?? My definition of karst area includes an underground stream. I have heard many people talk about an underground stream that runs thru this area to Pemberville. Could you check this out?

A: The ODNR - Division of Geological Survey has produced a map titled "Known and Probable Karst in Ohio", DCMS Map No. 24. You can order a copy of this map by calling 614-265-6576. This map shows that although all of Wood County is underlain by a carbonate (limestone and dolomite) dominant lithology, it is not an area of known or probable karst. You will have to ask the Division of Geological Survey personnel what constituted a probable karst area. Typically, there would need to be some sort of surface depression that is connected to a fracture or solution cavity in the carbonate bedrock. Some carbonate formations are more soluble than others. The more soluble carbonate formations are located in eastern Seneca and Sandusky Counties. In order for your area to be classified as being karst, you would need to identify sinkholes, or surface depressions that are caused by collapse or solutioning of the limestone. Depressions in fields that do not hold water would be an indication that a karst feature might be present.

There is a lot of talk about underground rivers in Ohio. However, this is not an accurate representation of ground water flow in Ohio. Ground water flows through the pores in the sediment and rock, and through any fractures or solution cavities in the rock that may exist. We have not mapped any large fractures or cavities in Wood County that might be inferred as being an underground river. As I recently stated, some carbonate formations are more soluble than others so there may be a trend in higher well yields but it should not be classified as an underground river.

If you have any questions, please let me know.

The cubic feet of flood water that is displaced by the footprint of the elevated dairy will be substituted by cubic feet space supplied by the borrow pit created by removal of soil to raise the dairy.

28.) Produce plans which show and explain where detergents, pesticides, herbicides, cleaning solutions, disinfectants and other contaminants will be disposed.

RESPONSE:

Relevant, non-privileged documents have been previously produced, are in the certified record (See Sheet 3 of 11 in the Final Permit Certified Record p. 7-345 that shows the process water line from the milking parlor which will discharge detergents, cleaning solutions and disinfectants to the sand separator and then to the manure storage)- and will be made available for inspection and copying upon request.

29.) Describe additional procedures to make sure no preferential pathways to the tiles exist.

RESPONSE:

The Director specifically objects to this interrogatory as vague and potentially overbroad. It is not clear what preferential pathways means or what tiles the interrogatory refers to.

30.) Produce RSL procedures to assure that the manure storage pond is resistant to relative movement during shearing since it is located over a fault line.

RESPONSE:

RSL is an item not a procedure, there is a procedure for creating a RSL. Relevant non-privileged documents have been produced in the Certified Record at Sheet 4 of 11 of the Final Permit in the Certified Record p.7-346, Certified Record p. 9-1, and will be made available for inspection and copying upon request.

31.) Explain why the orientation of the manure pond on the original construction plans was changed so that the longest dimension is no longer parallel to the expected direction of floodwater flow.

RESPONSE:

The Director did not develop the plans and cannot explain the orientation. The manure pond is not in the floodway, therefore the flow direction will be directed perpendicular to the waterway and the pond's longer dimension is parallel to the direction of water movement.

32.) Explain why the construction plans showed the manure pond embankment at 19.6' above grade was later changed to 10' above grade.

RESPONSE:

The design engineer chose to extend the manure storage pond further below the surface. The 19.6' was on the original application. The 10' is on the draft and final permits.

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(b)(6) Dairy
Wood County
PTI/PTO Review
~~9/17/04~~
~~1-26-05~~
~~rec 6-2-05~~
~~6-13-05~~
rec 6-21-05
7-14-05 called (b) NP, email VHDD

Part A - General Information

~~1. Page 9 – A dam permit will be necessary.~~

Part B – Permit to Install

~~1. Page 14 – Dewatering slab volume is stated to be 54,142 ft^3 and the prints state 52,142 ft^3. Which is correct?~~
~~2. Page 14 – Water usage is listed for the cattle consumption only. The total water usage needs to include the parlor wash water as identified in the calculations on the following page. Daily usage is still for consumption only~~
~~3. Page 16 and 17 – The facility is no longer in the well head protection area as designated on these two pages.~~

Part B – PTI – Geological Explorations

~~1. In the Geological Report, page 2 the Investigation Report states that Shelby Tubes were taken from borings C-5, C-6, C-10 and C-11, on page 4, Soil Testing, it is stated that 5 Shelby Tubes were taken. On sheet 2 of the prints the permeability summary states 5 Shelby Tubes were taken and in the logs above the summary 4 Shelby Tubes are shown. Which is correct?~~
~~2. Page 5, Aquifer Evaluation, is the "Appendix E" a typo?~~
~~3. Page 10, Table 2 – How was the top of the aquifer determined. It appears that the top of the aquifer for most of the bores was at the end of the bore.~~
~~4. Page 13, Floodplain, fix typo, second to the last sentence, second paragraph, "(on-sotd elevation 94.2)"~~
~~5. Page 17, Sole Source Aquifer, typo, "A map of soil source aquifers…."~~

Part B – PTI - Engineering Plans

~~1. Sheet 4 – Check the labeling of storage cales: #8 refers to 3a and 3b, shouldn't it be 3a and 5b~~
~~2. Sheet 2 – How can the elevation of the site increase by 0.5 feet and the elevation of the borings decrease by 0.0 to 0.3feet?~~
~~3. Sheet 3 – Check the capacity of the pond page 3 vs page 4.~~
~~4. Sheet 3 & 5 – What is the orange line connecting the two sand basins?~~

ERAC 876032-876034 – 95-1
(95)

8-9

Wood County Planning Commission

June 13, 2008

North Point Engineering
6657 Frank Ave NW
Suite 200
North Canton, OH 44720

RE: Proposed (b)(6) Dairy Facility – (b)(6)
Wood County, Ohio

Dear North Point Engineering Staff:

Please be advised that this letter is being written in regards to the above noted property in Wood County. As you are aware, extensive engineering and survey work has been undertaken at this site due to the existence of 100 year floodplain at the development site. Floodplain Development permits have been issued by this office and several meetings have been held to discuss the floodplain situation associated with this parcel of land.

In making floodplain development decisions and issuing development permits, the Planning Commission Office relies heavily on the technical and survey data provided by the applicant(s). In the case of this particular parcel of land, more detailed data has had to be provided and subsequently has undergone a more extensive review.

Acting on the request of concerned citizens, the Wood County Planning Commission office began to investigate claims that the ground elevation figures provided on the floodplain development plans contained discrepancies between versions and between the original survey data. The Wood County Engineer's Office was consulted, and have reached the conclusion that there is indeed discrepancies between the original elevation survey data and the elevation data provided on the development plans submitted to the Planning Commission Office and the Ohio Department of Agriculture. (Please see attached letter verifying this).

There is also concern in regards to the applicant's name on the current floodplain development permit. A new permit was issued to (b)(6) Jersey Dairy Leasing for the above noted facility, however, as of June 13, 2008, according to the Wood County Auditor's Office, this parcel is still owned by (b)(6) Dairy, LLC.

One Courthouse Square, Bowling Green, Ohio 43402
Phone: 419-354-9128 Fax: 419-352-4972
www.co.wood.oh.us/planning

Since accurate elevation and property owner data is essential in making any type of floodplain development decision, the possibility of erroneous data is particularly concerning. To that end, please contact the Planning Commission Office upon receipt of this letter so that we may schedule a meeting with representatives from your firm, staff from the Wood County Engineer's Office, as well as myself. This meeting will give us the opportunity to hopefully clarify and or rectify this situation. Failure to contact this office by July 15, 2008, will result in the revocation of the floodplain development permit issued to this parcel of land.

As I am certain there will be questions regarding this matter, please do not hesitate to contact my office to discuss this matter further.

Thank You,

Dave Steiner
Director

Enclosures

cc: Raymond Huber, Wood County Engineer
Andrew Kalmar, Wood County Administrator

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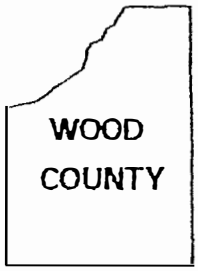
OFFICE OF THE WOOD COUNTY ENGINEER

Raymond A. Huber, P.E., P.S.
County Engineer
rhuber@co.wood.oh.us

One Courthouse Square
Bowling Green, Ohio 43402
Phone 419 354 9060
Fax 419 354 1409



May 22, 2008

Mr. Dave Steiner, Director
Wood County Planning Commission
One Courthouse Square
Bowling Green, OH 43402

RE: Request for elevation verification letter dated April 16, 2008

Dear Mr. Steiner:

In response to your written request dated April 16, 2008 for this office to investigate the elevations provided for the proposed (b)(6) Dairy Facility in Section 31 in Portage Township we offer the following findings.

1. The plans submitted by North Point Engineering for the (b)(6) Dairy flood plan development permit reference existing spot elevations to a Douglas Eis survey performed on January 30, 2004.

2. This office verified (within 0.044 feet) the elevation established by Eis of 687.01' for the site benchmark at the "Top NW Corner concrete Headwall SW Corner Bays and Solether Rd."

3. The North Point Engineering plans give a conversion factor of 591.30', which is to say that the existing spot elevations shown on the said plans can be converted to USGS datum by adding 591.30' to the spot elevations shown.

4. The existing spot elevations for the Douglas Eis survey can be converted to USGS datum by adding 600.00' to the spot elevations shown.

5. The location of the grid of spot elevations shown on the Eis survey and the North Point Engineering plans match very closely when plotted at the same scale.

Conclusion

As stated above, the array of spot elevations for the Eis survey and the North Point Engineering plans match very closely when plotted at the same scale and should give the same elevation when converted to USGS datum. However, when the conversion to USGS is done the elevations shown on the North Point Engineering plans give a converted elevation of 0.5 feet higher than the Eis survey. As an example, the North Point plans give an existing spot elevation of 95.2' on the top of a remnant of a concrete foundation, which matches the spot elevation and location on the Eis survey of 85.0'. Applying the appropriate conversion factors of 591.30' for the North Point plans and 600.00' for the Eis survey gives a USGS datum elevation of 686.50' for North Point and 686.00' for Eis.

Additionally, the North Point Plans give an existing spot elevation of 96.2' on the pavement centerline of Solether Rd. just east of the foundation remnant mentioned above, which matches the spot elevation location on the Eis survey of 87.0'. Again, and applying the appropriate conversion factors of 591.30' for the North Point Plans and 600.0' for the Eis survey gives a USGS datum elevation of 687.5' for North Point and 687.0' for Eis. In both cases it is important to note there is a 0.5' difference in elevation. It can therefore be said that a thorough check of the North Point plans relating to site elevation should be made. It is important to restate that these are existing spot elevations that should remain the same regardless of what improvements are planned.

This office has not spoken directly to Douglas Eis or representatives from North Point Engineering, which is the recommended next step to resolve this issue.

If you need any further assistance, please do not hesitate to contact our office.

Sincerely,

Raymond A. Huber P.E, P.S.
Wood County Engineer

RAH/JS/nd

xc: File

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proofed to prevent access by floodwaters by raising ground levels around it above the 100-year flood elevation."

{¶37} Additionally, Mr. Gerdeman's affidavit fully addressed Appellants' concerns about prong (c), proper orientation of the manure storage pond. Mr. Gerdeman averred that he observed that the surface elevation on the south side of the manure storage pond dips from 97.3 to 95.1 feet, which causes surface flow to proceed from west to east along this side of the pond. Thus, to comply with Ohio Adm.Code 901:10-2-06(A)(10)(c), (b)(6) oriented the pond so that the localized surface flow could follow a parallel path along the longest dimension of the pond. Mr. Gerdeman also stated that (b)(6) will dig a ditch designed to intercept any surface water flow before it reaches the manure storage pond wall along the pond's south side.

{¶38} Thus, in applying the legal standard of standing to the undisputed facts before us today, the Commission is unable to find that the Askins will be aggrieved or adversely affected by ODA's issuance of a PTI/PTO to (b)(6) to install and operate a dairy farm. Implicit in a finding that a party was aggrieved or adversely affected for purposes of R.C. 3745.04 or 3745.07 is that the party has or will suffer an injury resulting from the challenged action. The Commission is unable to find that Appellants will suffer an injury in fact that is actual and immediate, or even threatened, as there exists no realistic danger that harm will arise from the challenged action.

{¶39} Therefore, after a thorough review of all motions and responses thereto, as well as the relevant statutes, regulations, and case law, the Commission finds that Appellants failed to establish that they were aggrieved or adversely affected by the final

8-1.

MEMORANDUM

To. Jason McLean, Enforcement Supervisor
State Board of Registration for Professional Engineers and Surveyors

From: William E. Norris, P.E., F.ASCE

Re: Complaint Consultation (Code-of-Ethics)
Case Nos. 09-27, 09-28, 09-29

Date: September 14, 2009

1. These cases stem from a letter of complaint (September 18, 2008) addressed to the Board from Larry D. Askins, P.S. Three complaints are charged collectively against three individuals. The complaints are:

(1) the illegal practice of engineering,
(2) aiding and abetting the illegal practice of engineering, and
(3) code of ethics violations.

The three individuals are:

(1) David A. Gerdeman, P.E. (Case No. 09-27)
(2) Gary Zwolinsky, P.E. (Case No. 09-28)
(3) Andrew Ety, P.E. (Case No. 09-29)

2. This memorandum pertains only to complaint (3). I have provided an opinion on complaints (1) and (2) in my memorandum to you dated July 11, 2009.

3. OAC CHAPTER 4733-35 CODE OF ETHICS FOR ENGINEERS AND SURVEYORS. Following is selected language from the Code:

In order to safeguard the life, health, property and welfare of the public and the state of Ohio, to maintain integrity and high standards of skills and practice in the professions of engineering and surveying ...

The engineer or surveyor is obligated to act with complete integrity in professional matters for each client or employer as a faithful agent: shall be honest and impartial, and shall serve the public, client and employer with devotion.

The engineer or surveyor shall: Protect the safety, health and welfare of the public... Be completely objective in any professional report, statement or testimony...

4. This complaint involves the permitting for construction of a dairy in Wood County, Ohio. Mr. Gerdeman is President of North Point Engineering whose design services were employed by the dairy. Messrs. Zwolinski and Ety are Livestock Environmental Engineers with the Ohio Department of Agriculture whose responsibilities include the review of applications for Permits to Install and to Operate these types of operations.

d. If the 100-year flood event does rise to elevation 687.8 virtually the entirety of the south 1/3 of the property would be flooded, excepting an "island" area on the west side. That is clearly not what the FEMA map shows.

e. If the 100-year flood event is 686.5 at the south property line flooding would be limited to a small triangular area in the far southeast corner of the property, and most of the property would not be flooded, leaving at most less than the west half of the property in Section 31 to be flooded. That also is not what the FEMA map shows. **In my opinion the FEMA map is virtually useless as a basis for design.**

8 There apparently was general recognition that a different definition of the floodplain limits was needed, and was eventually agreed upon. Subject to some confusion about the term "breakline," it was agreed that the floodplain elevation limit at the north property line (Bays Road) was USGS 685.0, and 687.0 at a point 2000 feet south of Bays Road. These floodplain elevations were approved by the Wood County Planning Commission in the "final" plan submittal. However, confusion about elevations had been seriously complicated by the fact that the elevations of the floodplain shown on the first set of plans (Exhibit 20) were in fact based on the project benchmark elevation 95.71, whereas the topographic elevation detail were based on benchmark elevation 97.31.

9. So-called "final" plans (Exhibit 22) for the dairy were dated December 27, 2006, and were approved by all parties. These approved drawings indicate an acceptance of floodplain elevations shown on the plans at that time. However, the approval of the "final" plans was later revoked by the Wood County Planning Commission. A letter dated August 30, 2007 from the Wood County Planning Commission (Exhibit 17) to Mr. Askins, and forwarded to the Ohio Department of Agriculture, states: "The Base Flood Elevation (BFE) for the portion of the Dairy facility where the main structures are to be constructed (the southwest corner of Solether and Bays Roads) is 687 ft.... Please note that the BFE for the portion of the property located at the northwest corner of Jerry City and Solether Roads is 692 ft." This conclusion, according to the Commission, "was established using USGS data, data from the 2002 Portage River Basin Study performed by TMACOG, as well as discussions with the Wood County Engineer's Office." **This would place the entire property under water from a 100-year flood.**

10. TMACOG is an acronym for Toledo Metropolitan Area Council of Governments. The 2002 Portage River Hydrologic Study is a comprehensive two-part report prepared for the Council by Finkbeiner, Pettis and Strout. A 100-year flood profile is provided in Appendix B of Part 2 for Rocky Ford, extending from its mouth at Middle Branch Portage River to Jerry City Road. The profile is based on rates of flood flow as determined by the USGS. The profile is somewhat difficult to read, but my reading was elevation 691 at Jerry City Road to 689 at Bay Road. My reading is in general agreement with the Wood County Planning Commission, yet sufficiently different to illustrate the marginality of defining the limits of a floodplain.

11. Finally, as to the roles of Mr. Ety and Mr. Zwolinsky in reviewing the "final" plans on behalf of the ODA, it is entirely conceivable to me that, where elevations are concerned, their attention was focused on the required relative elevations of structures with respect to the floodplain elevations, and not on a check of the benchmark elevation called out on the drawing I therefore do not find a conclusive argument by Mr Askins that they were involved in a conspiracy to advance the project in-so-far as elevations are concerned.

AS TO POINT #2-ALTERED SOIL TEST DATA

1. My understanding of Mr. Askins's charges are as follows:

a. Mr. Zwolinski "did not meet his responsibility" to verify soil test data provided by Mr. Gerdeman in a Manure Management Plan submitted as part of the permit application..